BULLETIN

of the

ONTARIO COLLEGE OF PHARMACY

Vol. IV, No. 5 | TORONTO, Ontario | November, 1955

H. J. Fuller, Editor

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STUDENT ENROLMENT IN THE FACULTY OF PHARMACY

The total enrolment in the Faculty of Pharmacy for the session 1955-56 is 350, approximately 30 more than in last session. However, the enrolment in the First Year is down some 14 at 86. We had hoped that this year would see a slight rise even above a year ago in terms of first year enrolment in view of the participation in vocational guidance by more local pharmaceutical groups. It is quite evident that there must be even more activity at the local level if the number of candidates entering pharmacy is to be increased in the next several years.

If we look at the enrolment picture across Canada, however, we find that Ontario and British Columbia are probably the only two provinces suffering from a shortage of candidates. For example, the average number of graduates in Pharmacy in Canada annually during the period 1930-39 was 211. The number graduated in 1954 in all of Canada was 347, an increase which should be quite adequate to take care of the increase in population. The obvious solution then would seem to be a freer movement of graduates between provinces. However, the total figures above are somewhat misleading as there are certain factors not revealed by them which are serving to accentuate the shortage of candidates for retail pharmacy.

F. N. HUGHES

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The Ontario College of Pharmacy is the pharmaceutical licensing body for the Province of Ontario, Canada. All pharmacists licensed in Ontario are *IPSO FACTO* members of the College.

The majority of contributors to the Bulletin are members of the Faculty of Pharmacy, University of Toronto. However, contributions are welcomed from all members of the College.

Published five times a year, January, March, May, September and November by the authority of the Council of the Ontario College of Pharmacy.

Editorial Office, 46 Gerrard St. East, Toronto 2, Ontario

Circulation 3800

Authorized as second class mail, Post Office Department, Ottawa.

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PRESERVATION OF PHARMACEUTICALS

Part III—Preservation of Different Pharmaceutical Preparations

Dr. Louis N. Elowe

Extracts: Organic powdered products are usually not susceptible to microbial deterioration in the absence of water. This is true even when they are not sterilized. Since extracts are commonly powdered or pilular prod ucts, preserving them is a relatively simple matter so long as they are kept dry. This also applies to pilular extracts in which there is sufficient sugar concentration in the form of liquid glucose to preserve them against microbial action. Naturally, undue exposure of such products to the atmosphere must be prevented.

Tinctures, Spirits, Liquid Extracts: A minimum concentration of about 15 per cent alcohol is considered by many authorities as sufficient for the preservation of pharmaceutical liquid preparations with a pH of less than 5. Neutral or slightly alkaline liquids, on the other hand, require 17-18 per cent concentration of alcohol for the same purpose. It is thus apparent that such products as tinctures, spirits and alcoholic liquid extracts require no addition of preservatives as they contain alcohol in a concentration higher than 20 per cent.

Waters: Most waters are freshly prepared when needed and, therefore, they require no preservatives. The volatile oils in waters inhibit microbial growth to a small degree, but this inhibition is not sufficient if waters are to be stored for a long time. Consequently, it is necessary to add preservatives in such cases. The parabens, being odurless and tasteless, have been suggested as products that can certainly be used here to advantage.

Syrups and Elixirs: The concentrations of alcohol, sugar or other ingredients in syrups and elixirs must be considered during the formulation of such preparations from the point of view of their individual, and possibly additive, contribution to the overall preservation of the products. Additive effects on preservation due to the presence of alcohol, glycerine, sugars and other materials, in conjunction with the pH of the solution, must be ascertained. Apart from other considerations, this can be valuable economically.

Capsules, Tablets, Pills: Capsules, tablets and pills rarely, if at all, require chemical preservatives. But some formulations in the form of tablets or pills may be subject to microbial deterioration under normal stoage conditions. This can be prevented by using tightly-closed containers and the inclusion of a chemical drying agent, such as calcium chloride or silica gel, in the bottles. If the moisture content of the surroundings is below 25 per cent, microbial growth will be inhibited considerably.

When tablet triturates are intended for hypodermic injections, they should be prepared under aseptic conditions. The final product may be sterile, but should never be taken for granted as such. Solutions of these tablets should be sterilized by the most adequate method prior to injection.

Reasonably hard capsules not kept under damp conditions do not, as a rule, require the addition of preservatives. If they are exposed to excessive moisture, however, mould growth on the gelatin capsules themselves is likely to occur. Beta-naphthol has been found to be one of the most simple preservatives for the inhibition of mould growth on gelatin. It is usually incorporated into gelatin during the manufacture of capsules.

Eye, Nose and Related Preparations: Eye and nose preparations are usually multidose products in the form of aqueous or oily solutions, aqueous or oily semi-solid forms, suspensions and emulsions. They should be prepared in a sterile form with the addition of a chemical preservative when deemed necessary. Many preservatives are recommended and used for these preparations, some of which are chlorobutanol (0.5 per cent) phenylmercuric salts and thiomersalate (1:50,000 to 1:100,000). The parabens have been found useful in inhalants and other preparations applied to mucous membranes. A good combination of these for aqueous preparations is 0.04 per cent methylparaben and 0.02 per cent propylparaben. Since the parabens are less effective in oily media, they should be used in greater amounts in such preparations. The cationic agents in a concentration of 1:10,000 to 1:100,000 have also been used in this direction.

The phenols and cresols—and a great variety of other preservative agents such as hydroxyquinoline benzoate, oxyquinoline sulphate, and butyl paraben—are used for the preservation of products to be applied to mucous membranes like vaginal and rectal preparations but are not used in eye, ear, nose and inhalant pharmaceutical products.

Injections: Whenever possible, the use of single dose containers and sterilization by heat should be adopted. Because of their toxicity to tissues, chemical preservatives should be added to injections only when strictly necessary. Even then they should be used in minimum amounts. Some of the most commonly used preservatives in injections are phenol and chlorobutanol (0.5 per cent), cresol and chlorocresol (0.4 per cent), benzyl alcohol (0.9 per cent) methyl paraben (0.25 per cent), propylparaben (0.05 per cent), benzalkonium and benzethonium chloride (0.01 per cent), merthiolate (0.01 per cent), and phenylmercuric salts (0.004 per cent).

Preparations for External Use: Emulsions, mucilages, ointments, creams and allied preparations for external use containing 40 per cent or more of water are susceptible to bacterial and fungal deterioration, the O/W showing more deterioration than W/O emulsions. Fungistatic substances must be added for the preservation of these products as the deterioration is usually due to mould and yeast growth. Mucilages show extensive microbial deterioration against which they are preserved by the addition of 0.2 per cent benzoic acid among many other preservatives.

(Concluded on page 95)

AUTONOMIC DRUGS

PART IX—Neurotropic Antispasmodics

The Belladonna Alkaloids — Belladonna is the natural source of two major alkaloids, **atropine** and **l-hyoscine** (scopolamine) which have cholinergic blocking activity, which activity can be used clinically for antispasmodic purposes. Atropine, which is generally regarded as the prototype of neurotropic antispasmodics, is really a racemate, i.e. it is formed from equal parts of two optically active isomeric alkaloids, **d-hyoscamine** and **l-hyoscyamine.** The latter, since it is the antispasmodically-active form, is often used clinically too.

The Belladonna alkaloids are organic esters formed by union of tropic acid and either of two amino alcohols, tropine or scopine. **Atropine** is tropine dl-tropate, l-**hyoscyamine** is tropine l-tropate and **l-hyoscine** or **scopolamine** is scopine l-tropate. Scopine differs from tropine in having one extra Oxygen atom in the form of an ether bridge. The optical isomerism in these alkaloids gives rise to a very peculiar specificity of action. The antispasmodic effects of the drugs are of course due to the action of these alkaloids on the autonomic nervous system. The major side effects of the alkaloids (these may not be side effects if the drugs are used for other than antispasmodic action, e.g. when scopolamine is used in the production of "twilight sleep", the useful effect is mediated through the central nervous system and the effects on the autonomic nervous system constitute side effects) are expressed via the central nervous system. The autonomic activity of atropine is confined to the one component of the racemic mixture, l-hyoscyamine while the central effects are found equally in the two isomers. For this reason l-hyoscyamine is a better antispasmodic than atropine since one-half the dosage of the former gives equal autonomic (i.e. antispasmodic) effects and but one-half the effects (side-effects in this case) on the central nervous system. In like manner, l-hyoscine (scopolamine) is a better antispasmodic than is d-hyoscine. The specificity of drug action in these instances is quite high.

There is also specificity of action between the two drugs, atropine and hyoscine, in their effects on individual sites which are innervated cholinergically. The overall cholinergic blocking activity of both drugs often simulates epinephrine injection since cholinergic depression causes the normal adrenergic impulses to become dominant. But at individual sites, hyoscine exerts stronger blocking action on the iris, the ciliary body and the salivary, bronchial and sweat glands, while the action of atropine is stronger on the heart, intestinal and bronchial muscle. Consequently, atropine is of more use as an antispasmodic because of this specificity of autonomic action and because of its lesser central effects.

While atropine's use as an antispasmodic is perhaps its major use, the drug does have other clinical purposes, most of which may be attributed to its autonomic action. Its effect on the eye is to cause dilatation of the pupil (mydriasis) and paralysis of accommodation (cycloplegia). The effect is a local one and is valuable in ophthalmological examinations and therapy of certain eye conditions. Atropine is also used preanaesthetically to prevent excessive secretions of the respiratory system during anaesthesia by inhalation. Atropine

is also used occasionally to relieve the symptoms (but not the cause) of acute rhinitis, coryza and hay fever since it inhibits excessive nasal and lachrymal secretions. The alkaloid has some cardiovascular usefulness too. Abnormal heart slowing caused by DFP, physostigmine, pilocarpine, certain poisonous mushrooms, etc. (this action of these substances is cholinergic) can be counter-acted by atropine.

Scopolamine is used more for its effects on the central nervous system, its sedative and tranquillizing effects being useful in treating agitated patients suffering from delirium tremens, maniacal states, etc. The use of scopolamine in "twilight sleep" in obstetrical practice has been mentioned previously. The Belladonna alkaloids in mixtures or as pure compounds (in which case scopolamine is used more often) are useful in the pallaitive, symptomatic treatment of parkinsonism.

The official B.P. preparations in this category include Belladonna Herb, Dry Extract of Belladonna, Prepared Belladonna Herb, Tincture of Belladonna, Belladonna Root, Liquid Extract of Belladonna, Atropine, Atropine Sulphate, Eye Ointment of Atropine, Eye Ointment of Atropine with Mercuric Oxide, Injection of Atropine Sulphate, Lamellae of Atropine, Tablets of Atropine Sulphate, Hyoscyamus, Dry Extract of Hyoscyamus, Liquid Extract of Hyoscyamus, Tincture of Hyoscine Hydrobromide, Eye Ointment of Hyoscine, Injection of Hyoscine Hydrobromide. Hyoscyamine is defined in the B.P.C.

The concluding part of "neurotropic antispasmodics" will deal with the semi-synthetic and synthetic atropine substitutes.

G. R. PATERSON

MESSAGE FROM THE REGISTRAR

Early in November we shall commence the annual registration of Ontario pharmacists for the year 1956. You have probably received the blue "registration form" and it is our hope that you have already filled it in and returned it to us with your fees.

It is no small undertaking for us to record thirty-five hundred registrations, and do it correctly. Every member of our staff is assigned a specific task. At the first desk the envelopes are opened and contents checked. If the payment is correct, the cash is entered and the registration form is passed on to the next desk where the amount of the fee and the date of payment is recorded on the pharmacist's card. The form is then checked with the annual printed Register of Parmacists, and any necessary changes in the registration are noted. Where there are such changes, the stencil is withdrawn from the addressing machine file, a new stencil is ordered, and notification is sent to the various Government departments, and associations.

The registration form then goes to the next desk, where the "Green Seal" receipt is typed. At another desk the small receipt forms and the C.Ph.A. cards are prepared. The receipt numbers are then entered on the ledger sheets. Two members of the staff make a final check as the receipts are placed in the envelopes, which had previously been prepared on the addressing machine. The registration form is then placed on file.

You will see that the registration form plays a very important part in the processing of the annual fees. Most pharmacists return the form to us, correct and complete in every respect. To them we are grateful. Some will scribble an illegible signature on a cheque

and mail the cheque to us in a plain envelope. Others will attach a label to a $10.00 bill, and mail that in to us. One member of our staff devotes most of her time, during the fees rush, to writing individual letters to members who have not completed the forms correctly, or who have not given sufficient information. Remittances received without the registration form cause errors and wasted time in our office. If you will complete the registration form when you receive it, and send it in with your remittance, our handling of the annual fees will be speeded up. Our efficiency depends on your co-operation.

H. M. CORBETT,
Registrar-Treasurer.

HOSPITAL PHARMACY SURVEY

The increase in the number of hospitals in Canada and the inclusion of pharmaceutical facilities in many of these new institutions have created a demand for pharmacy personnel with specialized training. In 1951, the Faculty of Pharmacy, University of Toronto, established a course in Hospital Pharmacy Administration as an elective in the fourth year of the Bachelor of Science course in Pharmacy. To date, 37 students have taken this course and this year 24 students are enrolled in the class. However, to the best of our knowledge only 5 of these 37 students are now practising in hospitals. It therefore seemed prudent at this time to undertake a survey of hospital pharmacy practise in Canada to determine.

(a) specific, up-to-date information concerning the activities, duties and remuneration of pharmacists employed in this branch of pharmacy in order to utilize the services of more of these graduates in hospitals, and

(b) a complete picture of the opportunities for service in this branch of pharmacy to enable the Faculty of Pharmacy to recruit more students to enter hospitals as full or part-time hospital pharmacists.

The Pharmacy Act of Ontario as amended in 1954, Chapter 70, Section 36, states:

"(1) Except as otherwise provided in this Act or the regulations, no person other than a pharmaceutical chemist shall,

(a) keep open shop for retailing, dispensing or compounding any poison or drug; or

(b) sell, offer for sale or keep for sale, by retail any poison or drug; or

(c) dispense or compound prescriptions of legally qualified medical practitioners, dentists or veterinary surgeons.

(2) Clauses **b** and **c** of subsection 1 do not apply to an apprentice registered under this Act when acting under the supervision of a pharmaceutical chemist."

A prescription is defined by the Act, Section 1, as follows:

"(1) 'prescription' means a direction from a legally qualified medical practitioner, dentist or veterinary surgeon directing the dispensing of any drug or mixture of drugs to a named person."

(Continued on page 96)

ANTIBIOTICS

Recent Developments

Dr. Ross M. Baxter

The search for new antibiotics continues with the major efforts being concentrated on finding effective or more effective agents for the treatment of those infections against which the presently available antibiotics are not wholly effective or as is the case in some conditions, no really effective agent is available. The recent developemnts in this field will be briefly reviewed under the following headings: (1) Newer agents in the treatment of tuberculosis, (2) Agents effective against fungous infections, (3) Newer antibiotics effective against the protozoa, (4) Tumour-inhibiting antibiotics, (5) Miscellaneous Antibiotics under production, isolation, physical and chemical properties, pharmacology, and antibiotics from sources other than micro-organisms.

Although none of the newer antibiotics at present being evaluated show a clear superiority over streptomycin, PAS, or the isoniazids, a number of interesting possibilities exist for certain ones in the treatment of tuberculosis. **Cycloserine** (8) has been shown to be effective against normal and resistant strains and to exhibit synergism with isoniazed but not with streptomycin. **Pumlin** (5) an antibiotic isolated from **Bacillus pumilus** inhibits S. aureus at dilutions of 1 part in 20 million, one form of **Pasturella** at 1 part in 50 million and against virulent tuberculosis it was effective in 1 part in 200,000. **Allicin** (26) the oily liquid from **Allum schoenopiosum** (27) and the isoquinoline alkaloid **cepharanthine** (26) are effective against **Myobacterium tuberculosis** alone and with enhanced activity when combined with streptomycin. **Actithiazic acid** (28) has been synthesized as well as a number of its analogues. These have been tested for their activity against Myobacterium tuberculosis. Evidence to date indicates that actithiazic acid is an antogonist of biotin. The antibiotic spectrum of **hygromycin** (29) has been reported as well as certain of its physical and chemical characteristics (30). Hygromycin is active against both Gram-positive and Gram negative organism, Actinomycetes Myobacteria and large viruses and appears to be relatively non-toxic.

Two agents, **anisomycin** (2), (3), (4), and **trichomycin** (23), (24), effective against protozoal infections have been reported on in greater detail. Anisomycin has been shown to have a useful activity against Trichomonas vaginalis.

The antifungal activity of **oligomycin** (31), **Candidin** (6), **Candicidin** (7), (8), **ascocin** (6), and trichomycin (23), (24), (32), has received further study. Early reports indicates that candicidin is an ef-

ANTIBIOTIC	SOURCE	ANTIBIOTIC SPECTRUM	TOXICITY	CH
Amycetin	Streptomyces venaceus-drappus	Acid-fast bacteria Gram—	not great	Con cycl met
Anisomycin	———	protozoa fungi Some bacteria	———	
Auerolic acid	Streptomyces—	Gram + Some protozoa	high	
Azaserine	**(see cycloserine, oxamycin)**			
Biallylamicol PAA-704; SN6771	Synthesized	amebicide	———	diall deriv
Candicidin	Streptomyces—	Yeasts Candida albicans Blastomyces dermatitis	———	
Candidin	Streptomyces veridoflavus	Similar to candicidin	———	
Cycloserine (Oxamycin)	Streptomyces garyphalus also synthesized	Effective against Myobacterium tuberculosis	———	D-4-a isoxa
Eumycetin	Streptomyces—	antifungal	———	
Griseomycin	Streptomyces—	Similar to erythromycin and carbomycin	low	Simil mycir
Hydrabamine Penicillin G Salts	Partial Synthetic	as for penicillin	low	N, N (dehy ethyl diben
Hygromycin	Streptomyces hydroscopicus	Gram + and Gram— Actinomycetes Myobacteria and large viruses	low	
PA-9H	Streptomyces lavandulae Strain 8197-20	See cycloserine	———	
Puromycin analogues	———	Trypanosoma equiperdum (Sleeping sickness)	———	purine
Sarkomycin	Streptomyces erythrochromogenes	low antibacterial activity	———	
Synnematin A & B	Cephalosporium mould	Simliar to penicillin but 3-6 times as effective in certain infections	———	similar respect penicil cephal
Trichomycin	———	Antifungal antiprotozoal	———	

STRUCTURAL CHARACTERISTICS	COMMENTS	REFERENCE
Contains cytamidine cyclosamine and methyl serine	effective against Myobacterium tuberculosis **in vivo.** Similar to streptomycin but apparently no damage to eighth cranial nerve.	(1)
———	particularly effective against Trichomonas vaginalis and other protozoa.	(2) (3) (4)
———	———	
diallyl, diethylamine deriv. of bi-o-cresol	action additive or synergistic with neomycin and bacitracin	(5)
———	———	(6) (7)
———	———	(6)
D-4-amino-3-isoxazolidine	also effective in inhibiting tumour growth. Tested against sarcoma 180.	(8) (9) (10)
———	preparation of water-soluble derivatives also reported	(11)
Similar to erythromycin and carbomycin	———	(12)
N, N¹-bis (dehydroabietyl) ethylenediamine dibenzylpenicillin	———	(13)
———	———	(18)
———	structure has been shown to be identical with cycloserine	(14)
purine derivatives	puromycin has also been investigated for its tumour-inhibiting properties	(15) (16)
———	effective against certain types of sarcomas	(17)
similar in some respects with penicillin and cephalosporins	similar to penicillin but six times as active against Klebsiella pneumoniae, three times against Salmonella typhi and only 1 per cent against Staph. aureus	(19) (20) (21) (22)
———	———	(23) (24)

fective antifungal agent as are oligomycin and trichomycin. Oligomycin has evidenced a significantly high toxicity. Antifungal activity has been reported also for eumycetin (11), and chrysomycin (44).

An interesting aspect of a small number of antibiotics is their ability to inhibit tumor growth and other types of malignant tissue cells. In this group are cycloserine, puromycin (15), (16), and sarkomycin (17). Although the investigations are in the early experimental stages these agents may prove of value in the treatment of certain types of cancer.

The search is continuing for antibiotics from sources other than micro-organisms Diatyrene-2, (33), a polyacetylenic nitrile, has been isolated, from the mushroom **Clitocybe diatreta,** and characterized. Campestrin (34), has been isolated from the common mushroom **Psalliota campestris.**

The production, isolation, physical and chemical properties for angustmycin (35), leucomycin (36), levomycin (37) and amaromycin (38) and the pharmacology of argicillin (39) and deschlorobiomycin (40) have been reported. Studies on granegillin (41), megacine (42), albomycin (43) and chrysomycin (44) are continuing.

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R. M. BAXTER

VANCOUVER MEETING OF THE CANADIAN CONFERENCE OF PHARMACEUTICAL FACULTIES

Dr. George C. Walker

The 1955 meeting of the C.C.P.F. took place in Vancouver, B.C. from August 15-18 and was held in conjunction with the annual meeting of the Canadian Pharmaceutical Association and the Canadian Foundation for the Advancement of Pharmacy. The first Canadian Institute of Hospital Pharmacy was held on August 13-14 and several of the Conference members took part in this most successful inaugural meeting.

Delegates to the C.C.P.F. were present from all the schools of pharmacy in Canada and some twenty members attended the meetings. The Conference was honoured by the presence of several Canadian and American friends:—Dr. H. W. Youngken Jr., Professor of Pharmacognosy, University of Washington; Dean Haakon Bang, Dean of Pharmacy, State College of Washington; Dr. Elmer M. Plein, Professor of Pharmacy, University of Washington; Walter M. Maday, Pharmacist in Charge, University of Alberta Hospital; Mr. J. Earle Matthews, Medical Supplies Officer, Civil Defence Health Planning Group, Ottawa. Greetings and best wishes were extended on behalf of the American Association of Colleges of Pharmacy by its President, Dean Linwood F. Tice.

The University of Britsh Columbia provided the setting for most of the meetings of the Conference and the delegates were housed in dormitories on the campus. Dean R. S. L. Chant, Acting President of the University extended a warm welcome to the members of the Conference at the opening meeting, Monday, August 15th, and indicated the pleasure of Vancouver and the University of British Columbia in having the pharmaceutical meetings on the west coast. Dean Chant made some very interesting remarks on the educational picture at the University today and the co-ordination of the University departments.

The Chairman, Dean A. W. Matthews of the University of B.C. acknowledged the presence of the distinguished guests and formally opened the Conference sessions. The following members were present at the meetings:—Dean A. W. Matthews, Professor F. A. Morrison, Professor J. E. Halliday, Professor T. H. Brown and Mr. G. Moir from the University of B.C.; Dean M. J. Huston, Professor B. E. Riedel, Professor A. J. Anderson, from the University of Alberta; Dean W. C. MacAulay, Professor J. Summers, Professor J. G. Jeffrey and Mr. K. James, from the University of Saskatchewan;; Professor D. McDougall, University of Manitoba; Dean F. N. Hughes, Mrs. I. E. Stauffer, Professor G. R. Paterson and Professor G. C. Walker, from the University of Toronto; Professor J. A. Marquis, University of Laval; Professor R. Larose, University of Montreal; Dean J. E. Cooke, Mari-

time College of Pharmacy. It was interesting to note the number of pharmacy educators in Canada who had recently completed their Doctoral studies, and to the following members the Conference extended congratulations: J. G. Jeffrey, J. R. Murray, D. Y. Barker, D. R. Kennedy, J. Soucy, A. Mockle, E. A. Martin.

The Chairman in his address to the Conference stressed the stature that pharmaceutical education has gained in national pharmacy affairs and indicated some of the factors responsible for this fine development. "From the day when the late Dean E. L. Woods presented our first report to the C.Ph.A. our voice has been gaining strength" and the Chairman indicated the importance of our representation on the Council of the C.Ph.A. and the fact that our elected representative, Dean F. N. Hughes was sitting with them at the Vancouver sessions. Dr. Matthews concluded his remarks by pointing out the fact that the Conference now has the interest and enthusiasm of so many younger men to draw on and that under their guidance the future would be bright.

The meetings were conducted as in the past with the presentation of the reports of the various committees, followed by unfinished and new business, and culminating with the Teacher's Conference. It is perhaps sufficient at this time to indicate some of the more important developments and conclusions from the discussion of the diverse reports and business matters.

It was interesting to note the general occupational distribution of 1955 graduates in pharmacy as presented by Professor G. A. Groves, Chairman of the Committee on Enrolments.

Occupations	Men	Women	Percentage
Retail	144	26	81.7
Hospital Pharmacy			
(a) Civilian	3	3	2.9
(b) Armed Forces	1	1	0.9
Manufacturing Pharmacy	3	—	1.5
Manufacturer's Representatives	14	—	6.8
Post-graduate study	8	2	4.8
Non-pharmaceutical (including women graduates who have married and will not practise			
Unemployed (unable to obtain positions in pharmacy)	—	—	
	173	35	

Between the years 1946 and 1955 there have been enrolled in the pharmacy schools of Canada approximately 12,000 students and of this number about 13% on the average were women.

The Report of the Committee on Extension Activities and Public Relations as prepared by Professor H. J. Fuller brought to the attention of Canadian Pharmacy educators the importance of refresher courses and the active participation of the constituent faculties in public relations activities.

Considerable discussion in the sessions was devoted to the Report on Vocational Guidance and Student Selection as presented by Dean W. C. MacAulay. It seemed quite apparent that the outlook for pharmacy in Canada was good and it was necessary that schools of pharmacy give serious consideration to methods of recruitment of suit-

able candidates. The problem of Vocational Guidance was of importance to the C.Ph.A. and the C.F.A.P. as well as the Conference, and was being considered by all groups. The Foundation had requested that the Conference, through the mechanics and personnel of its organization consider the writing and editing of a vocational guidance monograph for pharmacy which could lend itself to distribution in secondary schools on a national basis. The Conference decided to appoint a Chairman of Vocational Guidance who would undertake the writing and editing of a vocational guidance monograph with as much assistance as deemed neecssary.

Civil Defence

Dean W. C. MacAulay presented the Report of the Committee to study the Suggested Course in Civil Defense. It had been suggested at the Halifax meeting of the Conference in 1954 that the Staff of the College of Pharmacy of the University of Saskatchewan run a trial lecture course on the various aspects of Civil Defence, particularly as far as the Pharmacist was concerned. This was done and proved to be very satisfactory. The material could be presented in roughly six to eight lecture periods of one hour each and provides a working basis for the other schools of pharmacy.

A motion was adopted that the Conference accept the responsibility of initiating a course of indoctrination in the role of the pharmacist in Civil Defence in the eight faculties of pharmacy in Canada and that this motion be forwarded to Dr. K. C. Charron, Principal Medical Officer, Civil Defence Health Planning Group in Ottawa. The Conference felt that Civil Defence was important and that all the schools have a definite responsibility in the matter.

Interprovincial Licensing

A committee had been appointed by the Chairman of the 1953-54 Conference, Dean A. F. Larose, to study the matter of a Dominion Examining Board. This request had come from the C.Ph.A. and a Committee to Study the Academic Aspects of Interprovincial Licensing was appointed with Dean W. C. MacAulay as Chairman. A progress report was made at Vancouver and embraced a survey of the Provincial Acts of the Provinces of Canada.

Proposed Affiliation with the A.A.C.P.

The members of the various schools of pharmacy in Canada have long taken an active interest in the affairs of pharmacy in the U.S.A. Meetings of the American Pharmaceutical Association and the Teachers' Seminar have been regularly attended by our educators, particularly within the last few years. The Teacher's meeting was held at Butler University, Indianapolis this year and five members of the Conference were present. The seminar was concerned with pharmaceutics and was thoroughly enjoyed by our attending members.

This friendly spirit of co-operation and interest in affairs of mutual interest between the two countries has persisted for a long time and is most gratifying. Early this year the Chairman received a communication from Dr. R. A. Deno, Secretary of the American Association of Colleges of Pharmacy requesting an expression of opinion on the merits of a suggestion made at the Interim Meeting of the Executive Committee of the A.A.C.P. regarding the extension of membership to include Canadian Colleges of Pharmacy. The Chairman acknowledged the letter and secured an expression of opinion from the

constituent faculties and the matter was placed on the agenda for discussion.

The Conference has gone on record as conveying to the Secretary of the A.A.C.P. the favourable opinion the Conference has respecting a closer relationship of the two groups and that the Chairman of the Conference appoint a committee of three to act in liaison with the committee of the A.A.C.P. in order to work out conditions. The committe was appointed by the new Chairman, Dean J. E. Cooke as follows: Dean A. W. Matthews, Dean F. N. Hughes, Professor R. Larose, the Chairman and Secretary to be ex-officio.

Accreditation Proceedings

The University of Toronto Faculty of Pharmacy was visited this spring by the accrediting committee of the A.A.C.P. and several days were spent by the committee in completing the accreditation proceedings. The schools of pharmacy in the U.S.A. are placed in certain categories, as for example, A, B, C, etc. depending on the teaching facilities, physical layout, staff members, and many other features concerned with the fitness of schools for teaching pharmacy. A very favourable report was made by the inspection committee and the Conference complimented Dean Hughes on the achieving of such a report and the high standards that accompany it.

Poison Chart

At the request of the C.Ph.A. the Conference established a committee consisting of Professor J. R. Murray, Professor J. E. Halliday, and Professor R. Plourde to proceed with the formulation of a concise antidote chart, and the University of Alberta and the University of B.C. were to proceed with the work of compiling such a chart. The C.Ph.A. intends some sort of distribution of the chart if at all possible.

C.Ph.A. Evening Meeting

One of the highlights of the Vancouver session was the evening meeting with the C.Ph.A. planned by Mr. J. C. Turnbull, Secretary-Manager of the C.Ph.A. Mr. Turnbull arranged for the presentation of papers by certain of the Conference members, which papers were concerned with some phase of pharmacy which would be of interest to all members of both groups. The following is a list of the topics and the speakers:—

Refresher Courses for Practising Pharmacists.....
..... Professor D. McDougall
Library Facilities in the Retail Pharmacy ..... Dean M. J. Huston
Research in our Colleges ..... Dean W. C. MacAulay
Aspects of Practical Training for Students ..... Professor R. Larose
Comparisons of Some Colleges of Pharmacy, Canada and U.S.A.
—Prof. F. A. Morrison

The papers were very well received and a great deal of credit is due the Secretary-Manager and the speakers for making this type of presentation available and so valuable to all concerned.

Prize in Dispensing Pharmacy

The C.Ph.A. had suggested in a letter to the Conference that they would like to award a prize in dispensing pharmacy consisting of a set of volumes of New Products Index. The Conference expressed

its pleasure at the proposed award and will be most pleased to look after the awarding of the prize in the respective schools.

Reference Books

Following the presentation by Dr. M. J. Huston to the C.Ph.A. on Library Facilities in the Retail Pharmacy, the Conference passed a motion to the effect that the list of minimum requirements as presented by Dr. Huston and endorsed by the Conference be sent to the C.Ph.A. with the recommendation that the list be made available to each provincial association.

The Teacher's Conference

This aspect of Conference affairs is becoming more and more important each year as the meeting place where methods of teaching the diverse phases of pharmacy may be projected and thoroughly discussed. It is from such co-operative deliberations that pharmacy curricula may be co-ordinated and eventually finalized. The teacher's section concerned itself this year with a discussion of the general field of pharmaceutics under the Chairmanship of Professor B. E. Reidel and the close co-operation of Professor F. A. Morrison. The field of pharmaceutics was broken down into such divisions as: Fundamental Principles and Processes, Pharmaceutical Preparations, Pharmaceutical Legislation and Dispensing Pharmacy. Much interesting discussion was brought forward and a better orientation to the teaching of the pharmacy subjects thus secured.

The 1955 Conference meetings were enjoyed by all and much progress was made in many directions. It was particularly enjoyable to see so many of the younger staff members present and actively participating in the discussions. This year marked for the first time, membership of the Canadian Society of Hospital Pharmacists and the Canadian Conference of Pharmaceutical Faculties in the Canadian Pharmaceutical Association, and to representation on the Council of the C.Ph.A. This important step forward was expressed simply and clearly by Dean A. W. Matthews, Chairman of the Conference, in a talk to the C.S.H.P. concerning "The Role of the Hospital Pharmacist in the C.Ph.A.", when he stated "Through the broadening of its membership, and by granting a direct voice in the conduct of its affairs to groups having special interest within the broad field of pharmacy, the C.Ph.A. has taken an important step in the direction of greater solidarity". Diligence, co-operation and hard work will be necessary in the future in order to bring national pharmacy into complete focus.

G. C. WALKER

PRESERVATION OF PHARMACEUTICALS

(Concluded from page 83)

Fats and Fixed Oils: Antioxidants are used to help preserve fats and fixed oils against rancidity. While they help to retard rancidity, antioxidants do not always prevent it completely. The antioxidants used in this connection are pyrogallol, gallic acid, benzoin, hydro-quinone, protocatechol, beta-napthol, sodium bisulfite, ethyl and propyl gallate and many others.

L. N. ELOWE

HOSPITAL PHARMACY SURVEY

(Concluded from page 86)

Furthermore, the revised regulations on the Opium and Narcotic Act, which became effective on September 15, 1954, devote sections 22 and 23 to Hospitals.

"22. A person who is in charge of, or has the custody of any drug or narcotic product in a hospital, infirmary, convalescent home or other premises where persons or animals receive medical care and treatment shall

(a) cause to be kept a suitable record of

(i) the name and quantity of any drug or narcotic product received,

(ii) the date when the drug or narcotic product was received,

(iii) the name and the address of the person from whom the drug or narcotic product was received,

(iv) the name and quantity of any drug used in manufacturing a drug or narcotic product,

(v) the name and quantity of any drug or narcotic product manufactured and the date of manufacture,

(vi) the name and address of the physician, dentist or veterinary surgeon ordering or prescribing, a drug,

(vii) the date when the drug was ordered or prescibed, and

(viii) the name and address of the person for whom the drug was prescribed or the name and address of the owner of the animal for whose use the drug was prescribed; and

(b) take all necessary steps to protect the drug or narcotic product against loss or theft.

23. No person in charge of any drug or narcotic product in a hospital, infirmary, convalescent home or other premises where persons or animals receive medical care and treatment shall supply a drug or narcotic product to any person except a patient receiving treatment at such premises and upon the direction of a physician, dentist or veterinary surgeon."

The employment of "professionally competent, legally qualified" (1) pharmacists in our Canadian hospitals is evident. Yet there are 673 hospitals in Canada with 50 beds or over and only 220, or 31.30%, of these institutions employ a full-time pharmacist. To whom are these responsibilities entrusted in the other 453 hospitals Isn't the hospital patient entitled to the same protection with regard to pharmaceutical service as the patient treated at home?

REFERENCE

(1) Minimum Standard for Pharmacies in Hospitals, Bulletin of the American Society of Hospital Pharmacists, 7: 31 (Jan.-Feb.) 1950.

H. J. FULLER I. E. STAUFFER

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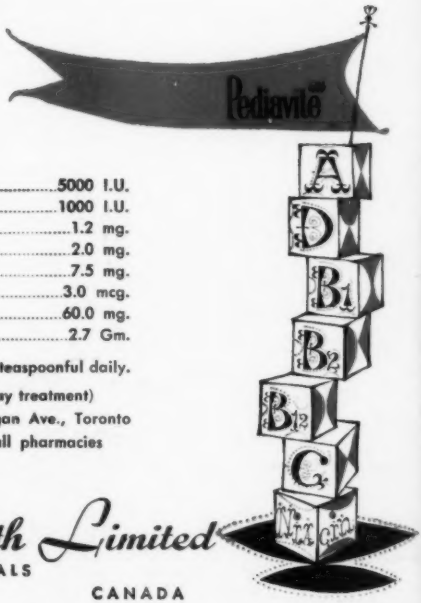

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